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Scabies and Leprosy.

Attention is drawn to a point in the foregoing histories: Of the nine cases under discussion five, or 55 per cent, were afflicted with scabies prior to the appearance of the leprous lesions. The writer has had an opportunity to examine over 8,000 cases of leprosy, and while he has no accurately recorded data to cover this point in all of the cases, yet he has often been struck with the frequency with which cases of leprosy either have scabies at the time the patients come under observation or who give histories of having had scabies.

Conclusion.

The present stage of the development of the treatment herein described does not warrant a claim that anything like a specific for leprosy has been found, but experience does show that it gives more consistently favorable results than any other that has come to our attention, and it holds out the hope that further improvement may be brought about. It produces apparent cures in some cases, causes great improvement in many others, and arrests the progress of the disease in almost every instance. We have on hand at present over 20 persons who have become microscopically negative since they began the treatment. The treatment is apparently equally efficacious in all forms of the disease; that is, the tubercular or hypertrophic, the anæsthetic, and the mixed. A series of cases is now undergoing the treatment for the purpose of more accurate study of its effect in the different forms of the disease and whether any difference exists as to sex. Experience also shows the great desirability of further trial in the hands of other workers in different parts of the world, with the hope that improvement may result. Finally, it is always important to remember that there are many treatments for leprosy which apparently cause some improvement, and it not infrequently happens that when cases of leprosy are placed under better hygienic conditions and have hospital care, or for other reasons not understood, the disease is often arrested, in a few instances improvement results, and that apparent cures may take place without any treatment.

DRUG INTOXICATION.

AN ECONOMIC WASTE AND A MENACE TO PUBLIC HEALTH.

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It has been estimated that more than 200,000 persons die annually in the United States from so-called degenerative diseases, and the mortality statistics compiled by the Census Bureau show that in the registration area there has been an increase of more than 100 per

cent in the deaths from diseases of the kidneys, heart, and blood vessels during the past 30 years.

While it is to be expected that the gradual decrease in the general mortality rate, particularly the decrease in deaths from readily preventable diseases like typhoid fever and smallpox, would tend to lengthen the average human life, and thus add to the number of deaths from these so-called degenerative diseases in advanced years, mortality statistics show that the greater proportion of the increase in the death rate from diseases of the kidneys, heart, and blood vessels has been among persons who should be and are generally considered to be in the prime of life. This great increase in the mortality of persons between 40 and 60 years of age, from diseases characteristic of senility, constitutes a deplorable and unnecessary economic loss that is well deserving of careful and comprehensive study.

For many years it has been accepted as fact that changes in the natural resistance of the human body may be and are brought about by intoxications such as are produced by alcohol, tobacco, narcotic drugs, and the various occupational poisonings that are attracting such widespread attention at the present time. These several sources of intoxication have, however, long been recognized and considerable attention, time, and thought have been devoted to the study of their possible untoward effects. Their harmfulness was generally well known and some effort made to combat their influence even before the end of the eighth decade of the previous century, from which period the steady and somewhat rapid rise in mortality from degenerative diseases appears to date.

An important source of intoxication to which altogether too little attention has as yet been given is suggested by a comparative study of the statistics published in the Thirteenth Census of the United States, in connection with the remarkable increase in the manufacture and inferentially, therefore, in the consumption of materials used as medicines. The paragraph relating to patent medicines and compounds and druggist's preparations shows that during the 60 years for which figures are obtainable the values of products of this type at the manufacturing establishment increased from \$3,863,815 in 1849 to \$141,941,602 in 1909. An even more impressive suggestion is presented by the appended table showing the increase in the number of establishments engaged in the manufacture of commodities of this type, the cost of the materials used, and the value of the products at the manufacturing establishment, compared with the increase in population of the United States during practically the same period of time.

Number of establishments engaged in the manufacture of patent medicines and druggists' preparations, the cost of materials used and the value of the product as manufactured compared with the population of the United States, exclusive of outlying possessions, during the corresponding period.¹

Year.	Number of establishments.	Cost of material.	Value of product.	Population of United States.	Year of census.
1909.....	3,642	\$50,375,665	\$141,941,602	91,972,266	1910
1899.....	2,154	31,949,890	88,790,774	75,994,575	1900
1889.....	3,089	15,571,187	43,940,120	62,947,714	1890
1879.....	620	7,906,138	16,885,498	50,155,783	1880

¹ Thirteenth Census of the United States, 1910, v. 8, pp. 451-452, and v. 1, p. 126.

Thus it appears that while the increase in population of the United States from 1880 to 1910 was approximately 83.3 per cent, the increase in the value of patent medicines and related products was 740.5 per cent. In other words, while the population of the United States was less than doubled, the value of the medicines manufactured and consumed was increased ninefold. The cost of the material to the manufacturer was seven times greater in 1909 than in 1879, and the value added by manufacture was eleven times greater in 1909 than it was in 1879. These figures, given above, high as they are, represent but a minor portion of the expenditures by American people for medicines of various kinds. Many, if not all, of the chemicals used as medicines are made in manufacturing establishments other than those included in the above enumeration, and other materials, particularly crude drugs and the finer grades of chemicals, are imported from foreign countries. The table of imports for consumption in the United States for 1913 includes drugs, chemicals, and other products used as medicine to the value of more than \$100,000,000. It has been conservatively estimated that the people of the United States expend annually upward of \$500,000,000 for medicine, and that by far the greater bulk of the medicine purchased is consumed haphazardly and not under the direct supervision of experts whose knowledge would tend to prevent harmful intoxication and untoward results from the ingestion of potent and in many instances dangerously harmful preparations.

The relative quantities of some of the products imported are shown in the appended tables, compiled from the list of imported merchandise entered for consumption in the United States, issued by the Department of Commerce. The first of these tables shows the number of pounds of some of the more widely used botanical drugs imported into the United States during the years 1909 to 1913, inclusive, and the second table reflects the quantities of some of the more widely used medicinal chemicals entered for consumption during the same period.

Quantity of some of the more widely used botanical drugs imported into the United States during the years 1909 to 1913, inclusive.

	1909	1910	1911	1912	1913
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Aloes.....	671, 257	944, 007	980, 205	666, 229	909, 279
Asafetida.....	42, 335	95, 536	114, 686	138, 066	134, 579
Balsam of Peru.....	25, 843	50, 363	37, 910	47, 862	48, 996
Benzoin.....	69, 146	55, 634	98, 366	94, 733	105, 967
Buchu.....	3, 502, 385	130, 644	166, 345	181, 121	105, 310
Cinchona.....	234, 257	3, 305, 894	4, 136, 354	2, 935, 350	3, 329, 973
Copaiba.....	87, 050	208, 566	191, 154	159, 172	206, 447
Cubebs.....	1, 485, 389	104, 713	129, 014	111, 357	166, 307
Gentian.....	35, 166	1, 177, 433	1, 537, 919	1, 585, 612	1, 796, 928
Ipecac.....	66, 096	36, 261	27, 654	41, 627	54, 648
Jalap.....	1, 666, 457	199, 905	230, 679	119, 211	277, 275
Nux vomica.....	570, 124	2, 738, 662	4, 330, 402	2, 427, 187	2, 306, 735
Sarsaparilla.....	2, 159, 553	560, 858	379, 091	452, 917	301, 308
Senna.....		2, 564, 452	3, 063, 275	3, 164, 003	2, 634, 117

Quantities of some of the more widely used medicinal chemicals entered for consumption in the United States during the years 1909 to 1913, inclusive.

	1909	1910	1911	1912	1913
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Acid:					
Benzoic.....	491, 739	364, 650	502, 878	470, 004	863, 015
Boric.....	230, 968	416, 842	343, 094	276, 496	362, 400
Carbolic.....	4, 729, 552	4, 507, 693	4, 371, 014	5, 686, 704	8, 345, 631
Citric.....	243, 010	142, 001	97, 847	67, 332	8, 677
Salicylic.....	1, 688	64, 531	32, 876	28, 769	31, 844
Tartaric.....	124, 774	104, 457	331, 538	105, 311	78, 942
Aniline oil.....	1, 950, 620	1, 046, 805	1, 917, 202	1, 843, 443	2, 015, 318
Aniline salts.....	6, 130, 517	5, 870, 905	5, 133, 723	4, 831, 075	4, 976, 108
Caffeine.....	149, 599	60, 463	57, 025	43, 859	59, 773
Camphor.....	2, 421, 023	3, 519, 233	4, 218, 430	2, 404, 140	3, 941, 170
Cinchona bark alkaloids.....	1 ² 2, 330, 304	1 ³ 3, 012, 196	1 ³ 3, 102, 194	1 ³ 3, 044, 238	1 ³ 3, 237, 994
Iodine.....	12, 961	771, 090	210, 467	497, 823	351, 296
Lime, citrate of.....	3, 917, 274	4, 114, 256	5, 219, 544	5, 903, 501	5, 526, 954
Tartar and cream of tartar.....	32, 121, 394	28, 415, 045	29, 312, 257	23, 746, 330	29, 548, 388

¹ Ounces.

When one considers the potential possibilities for harm inherent in practically all drugs and preparations it is astonishing that attention has not earlier been directed to the need for careful, systematic study of the possible untoward influences of the several drugs used.

The frequent, excessive or long-continued use of any one of a number of inorganic compounds, particularly the soluble salts of mercury, lead, uranium and related metals, has been shown to be irritating to the kidneys and capable of producing chronic lesions. The constant ingestion of many of the otherwise innocuous inorganic salts when contaminated by traces of arsenic or lead may, and undoubtedly will, produce toxic manifestations.

Many organic compounds have also been found to produce marked changes or secondary manifestations. The changes produced by alcohol and the narcotic drugs, have been fairly well recognized and considerable data are also available regarding the harmful effects of the coal-tar analgesics, the several hypnotics, and a number of aldehydes and related products.

All of the important or active medicaments must of necessity have harmful influences when taken indiscriminately or for a continued length of time. It has been very properly asserted that the activity of drugs may vary to an infinite number of degrees. It may be accepted as fact that whenever the activity is sufficient to produce a decided therapeutic effect in disease it is also sufficient to produce a deleterious effect when improperly used, either as to time or quantity. In other words, useful drugs are of necessity poisonous substances which tend to derange normal processes of the human organism and many of them must of necessity be extremely injurious to the various organs of the body if used at all liberally for any appreciable length of time.

Quinine, for instance, the alkaloid of cinchona bark, is still used in rather large quantities and as such or in the form of bark was imported into the United States, in 1913, to the total of 2,065,000,000 average doses, enough to give every man, woman and child from 25 to 30 doses each year. This drug has long been known to produce a characteristic form of intoxication accompanied by roaring in the ears, impairment of hearing, dizziness, headache and nausea. Gastro-intestinal disturbances are also observed at times and the ingestion of even small doses for a considerable period may be followed by gastric catarrh, and its sequelæ. The administration of larger doses has been followed by marked and at times persistent deafness and even blindness.

The habitual ingestion of coal-tar analgesics, which form paraminophenol, is followed by a train of symptoms including destructive changes in the blood, the production of methemoglobin, a degeneration of the heart muscle, cardiac failure, cyanosis, abnormally low temperature, and collapse.

The salicylates have many of the properties of coal-tar analgesics and are used quite extensively as sedatives for the relief of headache and neuralgic pains. They are known to have a deleterious influence on the digestive function and in larger doses or when long continued are frequently accompanied by symptoms of cinchonism similar to those produced by quinine. The salicylates may also have a depressing influence on the central nervous system accompanied by convulsions, slowing of respiration, and collapse from circulatory depression.

Pontius (*J. Am. M. Assoc.*, v. 62, p. 797) reports seeing a nervous woman, age 45, who on the advice of a friend had for the past year taken 5-grain tablets (1 per dose) from 3 to 10 times daily for neuralgic pains. Her mental condition when seen by the physician was similar to that of one addicted to the morphine habit.

The coal-tar hypnotics like sulphonal and trional may cause acute symptoms of poisoning accompanied by ataxia, nausea, gastric pain, irritation of the kidneys, albuminuria, and nephritis.

The mental state induced by the long-continued use of sulphonal and its congeners in full doses is said to be a badly disturbed one with derangement and even dementia.

The occurrence of acute intoxication in patients from the ingestion of various drugs is frequently ascribed to idiosyncrasy. As yet comparatively little is known regarding the principles underlying this occasional manifestation of undue activity, but it is probable that idiosyncrasy, so called, is in reality due to the synergistic action of several compounds taken at the same time or to the combined action of products formed in the human body with a compound taken as medicine.

In connection with some drugs, the use of which is long continued, the body may develop a tolerance or diminished sensitiveness to their action. This appears to be particularly true of narcotics and of many of the cathartic drugs. These lead to the habitual consumption of drugs, and their use once commenced is fraught with many difficulties. That the use of the so-called laxative drugs is not an entirely negligible factor is well shown by the table presented above, which enumerates the quantities of a few of the drugs of this type that are consumed annually in this country.

The amount of money expended annually for drugs and medicines in this country is out of all proportion to the real need or requirements of the people, and to this extent at least the unnecessary use of medicines may be considered an economic waste.

Enough has been said to demonstrate that medicines if at all deserving of the name must of necessity be harmful when misapplied or when used for any considerable length of time without a due appreciation of their possible secondary influences and the chronic derangements that may follow in their wake.

The rapid increase in mortality from degenerative diseases and the fact that this increase is greatest in persons who should be in the prime of life would warrant making a careful study of the problems involved with the view of directing attention to the causative factors of the degenerative processes.